



# **PFAS Sampling and Analysis for Project Managers**

*Things You Need to Know*

Presented By  
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# Objectives

- **Review available Navy guidance**
- **Review special sampling collection requirements**
- **Discuss laboratory accreditation and methods**
- **Discuss analyte descriptions**
- **Describe DoD QSM, Version 5.1, Table B-15 requirements**
- **Discuss key communication**
- **Discuss data review and validation**

# Navy Guidance

- Interim Per- and Polyfluoroalkyl Substances (PFAS) Site Guidance for NAVFAC Remedial Project Managers (RPMs)/Sept 2017 Update, 5090 Ser EV/006, 28 September 2017
- US DON SOW for Basewide PFAS PA and SI Template, October 30, 2017

## Other Guidance

- MIL-PRF-24385F(SH) w/ AMENDMENT 2, 7 September 2017
- DoD Quality Systems Manual for Environmental Laboratories, Version 5.1,2017 (Appendix B, Table B-15)  
<http://www.denix.osd.mil/edqw/home/>
- Bottle Selection and other Sampling Considerations When Sampling for Per and Poly-Fluoroalkyl Substances”, EDQW, July 2017, Rev. 1.2  
<http://www.denix.osd.mil/edqw/home/>

## Other Guidance

- Uniform Federal Policy for Quality Assurance Project Plans, Optimized UFP-QAPP Worksheets, IDQTF, March 2012  
[https://www.epa.gov/sites/production/files/documents/ufp\\_qapp\\_worksheets.pdf](https://www.epa.gov/sites/production/files/documents/ufp_qapp_worksheets.pdf)

# Accreditation and Methods

- DoD ELAP accredited laboratory

<http://www.denix.osd.mil/edqw/accreditation/accreditedlabs/>

- “EPA 537” for drinking water
- “PFAS by LCMSMS Compliant with QSM 5.1 Table B-15 for all other media ....**NOT EPA 537 MOD!!!!**”

- Back-up laboratory

# Analyte Descriptions

- Salt vs Anion

e.g., PFBS: potassium perfluoro-1-butanesulfonic acid  
vs perfluorobutane sulfonate

- CAS Numbers: 29420-49-3 vs 375-73-5
- 2000 ng/mL vs 1770 ng/mL

- Linear vs Linear and branched isomers

# Analyte Descriptions

## Wellington Laboratories, PFAC-24PAR

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	2000	A
Perfluoro-n-pentanoic acid	PFPeA	2000	B
Perfluoro-n-hexanoic acid	PFHxA	2000	E
Perfluoro-n-heptanoic acid	PFHpA	2000	G
Perfluoro-n-octanoic acid	PFOA	2000	K
Perfluoro-n-nonanoic acid	PFNA	2000	M
Perfluoro-n-decanoic acid	PFDA	2000	Q
Perfluoro-n-undecanoic acid	PFUdA	2000	V
Perfluoro-n-dodecanoic acid	PFDxA	2000	X
Perfluoro-n-tridecanoic acid	PFTTrDA	2000	Y
Perfluoro-n-tetradecanoic acid	PFTeDA	2000	Z
Perfluoro-1-octanesulfonamide	FOSA	2000	T
N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA	2000	S
N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA	2000	U



# Analyte Descriptions

## Wellington Laboratories, PFAC-24PAR

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000	1770	C
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	2000	1880	F
Potassium perfluorohexanesulfonate*	PFHxSK: linear isomer	1620	1480	I
	PFHxSK: $\Sigma$ branched isomers	378	344	H
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	2000	1900	L
Potassium perfluorooctanesulfonate**	PFOSK: linear isomer	1580	1460	O
	PFOSK: $\Sigma$ branched isomers	422	391	N
Sodium perfluoro-1-nonanesulfonate	L-PFNS	2000	1920	R
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000	1930	W
Sodium 1H,1H,2H,2H-perfluoro-1-hexanesulfonate	4:2FTS	2000	1870	D
Sodium 1H,1H,2H,2H-perfluoro-1-octanesulfonate	6:2FTS	2000	1900	J
Sodium 1H,1H,2H,2H-perfluoro-1-decanesulfonate	8:2FTS	2000	1920	P

\* See Table B for percent composition of linear and branched PFHxSK isomers.

\*\* See Table C for percent composition of linear and branched PFOSK isomers.

## DoD QSM, Version 5.1, Table B-15

- *Required per NAVFAC Guidance (Sept. 2017)*
- <http://www.denix.osd.mil/edqw/home/>
- Applicable to all media **except** DW
- Media listed in Denix are aqueous, solid, tissue, AFFF
- Includes requirements based on concentration levels and media type

## DoD QSM, Version 5.1, Table B-15

- Sample preparation (e.g., whole aqueous sample, homogenization of soil sample, clean-up steps)
- Quantitation (primary and confirmation transitions, ion transition ratios, branched/linear isomers, isotope dilution)

# DoD QSM, Version 5.1, Table B-15

- AFFF
  - Sample in duplicate
  - Lowest LOQ for all analytes needed
  - Report down to LOQ ...**NOT DL OR LOD !!!**
  - No failures of extracted and injection internal standards applicable to target analytes

# Key Communication

- Communication with Prime Contractor
  - Project Requirements
  - Variances/Procedural Deviations
  - Failures
- Communication with laboratory
  - Identify suspected/known high concentration samples
  - Lowest limit of quantitation (LOQ) for each analyte

# Data Review/Validation

- Correct CAS numbers
- Correct standards concentrations used for quantitation
- Measured sample volume vs default volume
- Whole sample vs serial dilution

# Data Review/Validation

- Confirmation transitions
- Ion Ratios
- Sample duplicates
- Post spikes
- Blanks

# Knowledge Check

True or False:

- I should select a laboratory accredited for “Modified EPA 537” for soil samples.

**FALSE**

**ANSWER:**

**“PFAS by LCMSMS Compliant with QSM 5.1 Table B-15”**



# Knowledge Check

True or False:

- I should specify in my SAP when/if serial dilution instead of whole aqueous sample preparation can be used.

**TRUE**

# Summary

- CSM must support PFAS sampling and testing
- Review NAVFAC Site Guidance for RPM FAQs
- DoD ELAP accredited laboratories currently accredited for all media that is routinely required
- DoD QSM, Version 5.1, Table B-15 requirements include a number of new requirements that help to make data more consistent and defensible
- Communication with contractor and laboratory critical to projects success
- Data review and validation is critical and can be complicated

# Contacts and Questions

## **Point of Contact:**

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